REMARKS

The examiner rejected claims 1-79 in the pending application as obvious over a number of references. Claims 1-79 have been canceled and claims 80-115 have been added. The following remarks address the rejections with reference to the new claims.

Rejections Under 35 U.S.C. § 103

-Fulmer v. Zakoshonsky

The examiner rejected claims 1-79 as obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 6,465,695 to Fulmer, et al. in view of U.S. Patent No. 5,767,322 to Zakoshansky.

-Response

In order to establish that new claims 80-115 are *prima facie* obvious over the cited references, the examiner must point to two things in the cited references, and not in the applicant's disclosure--(1) the suggestion of the invention, and (2) the expectation of its success. *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991). See also MPEP 2143. The examiner has not met this burden.

Fulmer describes a "method for manufacturing cumene hydroperoxide [which] comprises reacting cumene and oxygen **in the presence of a water phase** comprising aqueous ammonia." Fulmer, abstract, and Office Action, p. 4 (emphasis added).

New claim 80 reads as follows:

> A process for oxidation of alkylbenzenes to produce one or more product hydroperoxides comprising exposing an oxidation feed to oxidation conditions, the **oxidation feed consisting essentially of an organic phase**, the oxidation feed comprising one or more alkylbenzenes, **an amount of water which is insufficient to form a separate aqueous phase**, and a quantity of **alkali metal base** which is insufficient to precipitate out of solution during oxidation but effective under the oxidation conditions to produce an oxidation product stream comprising **a total yield of one or more product hydroperoxides which is greater than that produced in the absence of the alkali metal base.**

The examiner has not pointed to a teaching or suggestion in the Fulmer of an "oxidation feed **consisting essentially of an organic phase**" which comprises "an amount of water which is insufficient to form a separate aqueous phase, and a quantity of **alkali metal base**." Nor has the examiner pointed to a teaching of such an oxidation feed comprising "a quantity of **sodium carbonate**."

The examiner attempts to establish a *prima facie* case of obviousness by arguing that "water content and the quantity of the neutralizing base can be varied by one of ordinary skill

in the art for process optimization." However, the examiner cannot establish *prima facie* obviousness by **merely arguing** that Fulmer could be modified to use an alkali metal base (or sodium carbonate) in an oxidation feed "consisting essentially of an organic phase." In order to establish *prima facie* obviousness, the examiner has the burden to point to a teaching or suggestion **in the references themselves** that it would be desirable to make such a modification. MPEP 2143.01; *In re Brouwer*, 37 U.S.P.Q.2d 1663, 1666 (Fed. Cir. 1995). The examiner has not pointed to such a teaching or suggestion.

Fulmer describes a number of oxidation processes in col. 1 and col. 2 , and complains that "in all of the above-mentioned wet oxidation processes, small amounts of the inorganic alkali or alkaline earth metal salts remain entrained within the product CHP--into the down stream process steps where they deposit on and foul various pieces of equipment." Col. 2, ll. 12-18. Fulmer says that "[t]he above-mentioned drawbacks and disadvantages are overcome or alleviated by a method and system . . .comprising reacting cumene and oxygen in the presence of ammonia or aqueous ammonia, and in the absence of an additive comprising an alkali or alkaline earth metal." Fulmer, col. 2, ll. 40-45. See also abstract, col. 2, ll. 49-50, ll. 52-59.

Fulmer later explains the advantages of not using "troublesome alkali-metal salt additives":

> The free ammonia method also does not employ troublesome alkali-metal salt additives. There are accordingly none of the immiscible, insoluble organic and alkaline phases, slowed mass transfer and lower degree of mixing between such phases, fouling of equipment due to salt deposits, or fluctuation of pH, each of which may require complex systems to overcome. The inventive method thus eliminates the need for complex systems and expensive equipment, and requires a lower initial plant investment, as there is no requirement for special equipment such as static mixers, counter-current extractors or coalescer units. The inventive process also employs a smaller quantity of ammonia as a neutralizing agent, which eliminates the need for periodic cleaning and plant shut downs associated with alkali and alkaline earth metal additives. Ammonia also acts as a single agent and is continuously available to neutralize acid inhibitors, and prevent phenol formation throughout the wet cumene oxidation process. Even though ammonia is not dibasic in nature and possesses no "inherent" buffering properties, the pH can be controlled more effectively, i.e., a tighter pH range is established, using ammonia than alkali-metal salt additives

Fulmer, col. 9, ll. 24-45.

The examiner apparently is arguing that Fulmer's method could be "optimized" by using alkali metal base. The examiner's argument cannot succeed in the face of the foregoing, which ***teaches away from using "alkali or alkaline earth metal base."***

The examiner cannot remedy the deficiency by pointing to Zakoshansky. Zakoshansky describes a "**water-alkaline emulsion (wet oxidation process).**" According to Zakoshansky, "it has been found that NH_3 injection increases the cumene hydroperoxide yield of a conventional wet oxidation process for preparing CHP from cumene without any other modification in the process." Zakoshansky, col. 3, ll. 44-46 (emphasis added).

The examiner has not pointed to a teaching in Zakoshansky of a process in which the "oxidation feed consists essentially of an organic phase" which comprises "an amount of water which is insufficient to form a separate aqueous phase." Nor has the examiner pointed to any teaching or suggestion that would motivate a person of ordinary skill in the art to ignore Fulmer's teaching not to use "alkali or alkaline earth metal base" and to use such base (or sodium carbonate) in order to treat an "oxidation feed consist[ing] essentially of an organic phase" comprising "an amount of water which is insufficient to form a separate aqueous phase."

New claims 81 and 101 specifically require that the process produce a "total yield of one or more hydroperoxides which is 7% or more greater than that produced in the absence of the" alkali metal base or sodium carbonate, respectively. The examiner has not pointed to any teaching that making the combination required by the claims would produce such a result. Nor has the examiner pointed to a teaching that making the claimed combination could: decrease "acetophenone formation . . . by about 20% or more" (claims 94-95 and 110-111); decrease "one or more of EMBA and DMBA . . . by about 20% or more" (claims 96-97 and 112-113); and/or, decrease "phenol content . . .by about 50% or more" (claims 98-99 and 114-115).

Applicant respectfully requests that new claims 80-115 be allowed.

-Colvin

The examiner also rejected claims 1-15 over U.S. patent No. 4,431,849 to Colvin.

-Response

Claims 1-15 have been canceled. Claim 12 was directed to the use of an "alkali metal base," and therefore roughly corresponds to new claim 80. The examiner has not established a case of prima facie obviousness of new claim 80 over Colvin because the examiner has not pointed to a teaching in Colvin of a process which produces "an oxidation product stream comprising a total yield of one or more product hydroperoxides which is greater than that produced in the absence of the alkali metal base."

Colvin describes

> a process for **preparing a methyl phenol** by rearranging a tertiary hydroperoxide in the presence of a primary hydroperoxide with a mineral acid and hydrogenating the primary hydroperoxide with a catalyst selected from the group comprising chromium, copper, palladium, platinum, nickel, ruthenium and rhodium in the rearrangement medium.

Colvin, col. 1, ll. 5-12. After "oxidizing an alkyl benzene," the process involves "decomposing the oxidation product solution, hydrogenating the acid decomposition product in the presence of a hydrogenation catalyst with or without solvent and recovering the resulting methyl phenol." Colvin, col. 2, ll. 25-39.

The process described in Colvin **reduces the content of hydroperoxides** in Colvin's solution. The examiner has not pointed to a teaching in Colvin of a process which produces "an oxidation product stream comprising a **total yield of one or more product hydroperoxides which is *greater*** than that produced in the absence of the alkali metal base." Claim 80 (emphasis added).

Applicant respectfully requests that the rejection be withdrawn.

CONCLUSION

For all of the foregoing reasons, Applicant respectfully requests entry of the amendments and allowance of all of the pending claims.

Respectfully submitted,

JIEMEN YANG ET AL

P. O. Box 2463
Houston, Texas 77252-2463

By _____
Attorney, Jennifer D. Adamson
Registration No. 47,379
(713) 241-3901